

## Introduction

The primary factors affecting air quality in San Luis Obispo County are: (1) the prevailing climatic conditions; (2) the type, quantity, and location of pollutant emissions; and, (3) the pollution control techniques employed by regulatory agencies and project applicants to avoid or reduce pollutant emissions. This appendix to the San Luis Obispo Conservation and Open Space Element provides background information to support the policies and implementation strategies included in the Air Quality chapter.

## Local Setting<sup>1</sup>

San Luis Obispo County covers an area of about 3,300 square miles along the coast of central California. For geography, climate and meteorology the county can be divided into three general regions: 1) coastal plateau, 2) upper Salinas River valley, and 3) east county plain. The coastal plateau is immediately inland from the Pacific Ocean and is typically five to ten miles wide. It ranges in elevation from sea level to about 500 feet above sea level, and is bounded on the northeast by the Santa Lucia Mountain Range. The Santa Lucia Range rises to roughly 3,000 feet elevation and runs parallel to the coast almost the entire length of the county. The upper Salinas River valley lies inland from the Santa Lucia Range in the northern portion of the county. The east county plain lies further inland along the eastern flank of the county, and includes about one third of the county's area.

About 75 percent of the County's population and a corresponding portion of the commercial and industrial facilities are located within the Coastal Plateau. Because of higher population density and closer spacing of urban areas, emissions of air pollutants per unit area are generally higher in this region than in other regions of the county. The Upper Salinas River Valley, located in the northern one-third of the county, houses roughly 25 percent of the county's population. Historically, this region has experienced the highest ozone and particulate levels in the county. Transport of ozone precursors from the Coastal Plateau and from the San Joaquin Valley may contribute to this condition. The East County Plain is the largest region by land area. However, less than one percent of the county population resides there. Dry land farming and unpaved roads in this region contribute to county totals for particulate emissions, but these emissions rarely affect other regions of the county.

San Luis Obispo County is part of the South Central Coast Air Basin, which also includes Santa Barbara and Ventura Counties. The climate of the county is characterized as Mediterranean,

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<sup>1</sup> The local setting section is excerpted from the San Luis Obispo Air Pollution Control District's Clean Air Plan (2001).

with warm, dry summers and cooler, relatively damp winters. Along the coast, mild temperatures prevail most of the year due to the moderating influence of the Pacific Ocean. The effects of the Pacific Ocean are diminished inland, and by major intervening terrain features such as the coastal Santa Lucia Mountain Range. As a result, inland areas experience a wider temperature range. Typical daily maximum summer temperatures average about 70° F near the coast, while inland valleys are often in the high 90's. Minimum winter temperatures run from the low 30's along the coast to the low 20's inland. Annual rainfall ranges from 16 to 28 inches along the Coastal Plateau, while the Upper Salinas River Valley generally receives about 12 to 20 inches of rain. The East County Plain is the driest area of the county with less than 12 inches of rain in a typical year.

Local meteorology, primarily in the form of wind velocity, wind persistence and the height and strength of temperature inversions, affects the behavior and fate of suspended particulate matter in the air. The origins and sizes of particulate air pollutants also play key roles in their behavior and fate.

Regional meteorology is largely dominated by a persistent high pressure area which usually resides over the eastern Pacific Ocean. During spring and early summer, as the onshore breezes pass over the cool water of the ocean, fog and low clouds often form in the shallow marine air layer along the coast. Surface heating in the interior valleys partially dissipates this marine layer as it moves inland, although the marine layer influence is still observed inland towards the center of the county.

In the fall, onshore surface winds decline and the marine layer shallows, allowing an occasional reversal to a weak offshore flow. This, along with the diurnal alteration of land-sea breeze circulation, can sometimes produce a "sloshing" effect. Under these conditions, pollutants may accumulate over the ocean for a period of one or more days and are subsequently carried back onshore with the return of the sea breeze. Strong inversions can form at this time, trapping pollutants near the surface.

This effect is intensified when the Pacific High weakens or moves inland to the east. This may produce a "Santa Ana" condition in which air, often pollutant-laden, is transported into the County from the east and southeast. This can occur over a period of several days until the high-pressure system returns to its normal location, breaking the pattern. The breakup of this condition may result in relatively stagnant conditions and a buildup of pollutants offshore. The onset of the typical daytime sea breeze can bring these pollutants back onshore, where they combine with local emissions to cause high pollutant concentrations. Not all occurrences of the "post Santa Ana" condition lead to high ambient pollutant levels, but it does play an important role in the air pollution meteorology of the County.

Wintertime radiation inversions which result from loss of surface heat to a clear, dark night sky can severely limit vertical mixing of air pollutants emitted near the ground. In combination with smoke from open outdoor burning and the use of wood-fired stoves or fireplaces for residential heating, low wintertime radiation inversions can be a main contributor to higher levels of particulate matter that have been measured in the Upper Salinas Valley area of the county. Low inversions and burning combine to leave a smoky pall over some North County communities throughout much of the fall and winter.

### **LOCAL AIR QUALITY<sup>2</sup>**

San Luis Obispo County skies are typically clear and blue with little of the characteristic brown haze associated with areas considered to have poor air quality, yet the county does have an air pollution problem. Based upon the potential for health and economic effects, certain substances have been classified as pollutants by the federal and state governments. Concentrations of the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), and lead are used as indicators of ambient air quality conditions.

Air monitoring is required to measure the amounts of these pollutants that are present in our air. When the levels are too high, our air is classified as polluted, and we are required to make efforts to clean it up. The San Luis Obispo Air Pollution Control District (APCD) maintains nine air monitoring stations which are located at different sites in the County Atascadero (Lewis Avenue), Carrizo Plains, Grover City (Lesage Drive), Morro Bay, Nipomo Regional Park, Nipomo (Guadalupe Road), Paso Robles (Santa Fe Avenue), and San Luis Obispo (Marsh Street and 3320 South Higuera Street). The APCD collects information 24 hours per day, seven days per week on ambient levels of pollutants, including ozone, particulate matter, nitrogen oxides, sulfur oxides, and carbon monoxide.

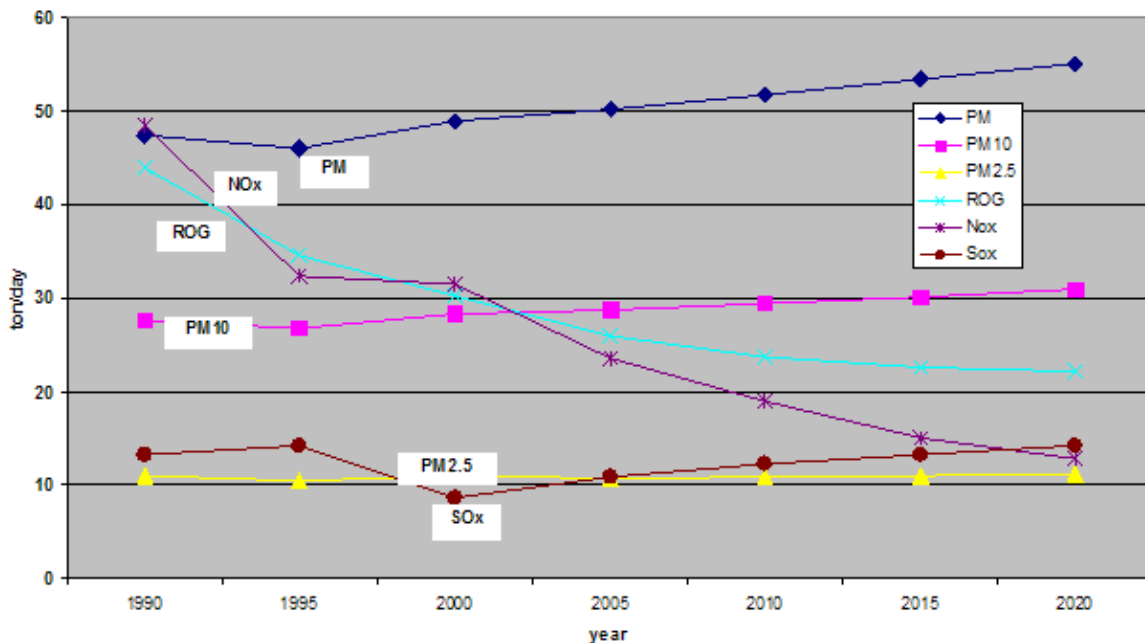
In years past, air quality in the county has exceeded established standards for lead, carbon monoxide, sulfur dioxide, ozone, and particulate matter. Violations of the state standard for particulate matter (PM<sub>10</sub>) still occur several times a year. Advancements in emission controls on vehicles and stationary pollution sources of all kinds have led to significant improvements in the county's air quality. As a result, the county meets most of the state and federal standards. With even better emission controls, and with continued help from businesses and the public, the county should be able to achieve all state and federal air quality standards in the near future.

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<sup>2</sup> The local air quality section is excerpted from the San Luis Obispo Air Pollution Control District's Annual Air Quality Report (2007).

Air pollution sources in the county are diverse, ranging from large power plants to small household painting projects, with motor vehicles as the largest contributor of air pollution in the county. Following is an overview of criteria air pollutants. Trends and future projections for criteria air pollutants based on the San Luis Obispo County Air Pollution Control District's recent Emissions Inventory are depicted in **Figure A2-1**.

**FIGURE A1-1  
EMISSION INVENTORY TRENDS AND PROJECTIONS 1990-2020**



### **Ozone**

On a regional basis, ozone is the pollutant of greatest concern in the county, particularly within the coastal plateau. Ozone located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the earth from harmful ultraviolet radiation that is emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. Meteorology and terrain play a major role in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and clear skies provide the optimum conditions for formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions; therefore, ozone is a regional pollutant that often affects large areas.

Ozone is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight, and is the primary component of smog. The amount of ozone formed is dependant upon both the ambient concentration of chemical precursors and the intensity and duration of sunlight. Consequently, ambient ozone concentration tends to vary seasonally with the weather. Reactive organic gases (ROG), also called reactive hydrocarbons (RHC), and nitrogen oxides (NOx) are the primary precursors to ozone formation. NOx emissions result primarily from the combustion of fossil fuels; ROG emissions are also generated by fossil fuel combustion and through the evaporation of petroleum products. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NOX are a group of gaseous compounds of nitrogen and oxygen that results from the combustion of fuels. A highly reactive molecule, ozone readily combines with many different components of the atmosphere. Consequently, high levels of ozone tend to exist only while high ROG and NOX levels are present to sustain the ozone formation process. Once these precursors have been depleted, ozone levels rapidly decline. Because these reactions occur on a regional scale, ozone is considered a regional pollutant.

On April 28, 2005, the California Air Resources Board (ARB) approved the nation's most health protective ozone standard with special consideration for children's health. Based on monitoring data San Luis Obispo County has been deemed non-attainment for the new ozone standard. **Figure A1-2**<sup>3</sup> provides the distribution of the county's ozone precursors by source for 2007. All sources combined to total 24,186.2 tons. The emission sources of reactive organic gasses (ROG) and oxides of nitrogen (NOx), the main precursors for ozone formation are primarily mobile sources from the transportation sector (68%).

### ***Carbon Monoxide***

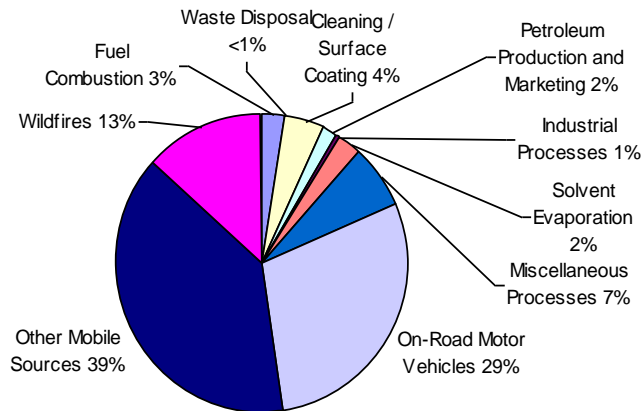
Carbon Monoxide (CO) is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources. **Figure A1-3**<sup>4</sup> provides the distribution of the county's carbon monoxide emission sources for 2007. All sources combined to total 60,665 tons. The highest CO concentrations are generally associated with cold, stagnant weather conditions that occur during the winter. In contrast to problems caused by ozone, which tends to be a regional pollutant, CO problems tend to be localized. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue.

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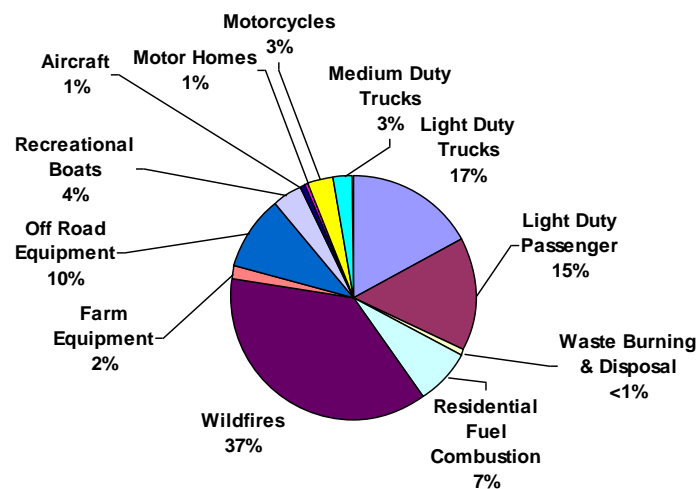
<sup>3</sup> San Luis Obispo Air Pollution Control District. 2007 Emissions Inventory. <http://www.slocleanair.org/air/emissions.php>.

<sup>4</sup> Ibid.

**FIGURE A1-2  
2007 OZONE PRECURSORS IN SAN LUIS OBISPO COUNTY**



**FIGURE A1-3  
2007 CARBON MONOXIDE EMISSIONS SOURCES**



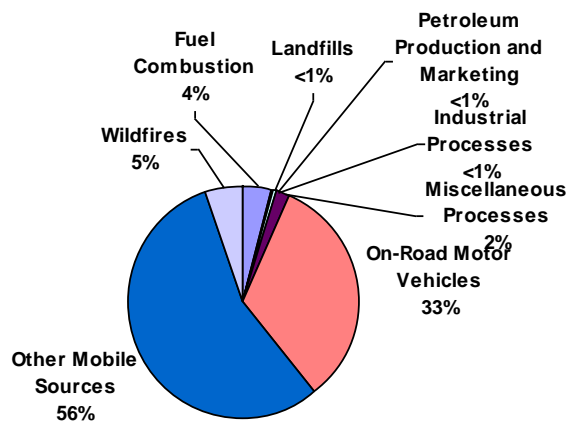
### ***Nitrogen Dioxide***

NO<sub>2</sub> is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO<sub>2</sub> are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO<sub>2</sub>. The combined emissions of NO and NO<sub>2</sub> are referred to as NO<sub>x</sub> and reported as equivalent NO<sub>2</sub>. Because NO<sub>2</sub> is formed and depleted by reactions associated with photochemical smog

(ozone), the NO<sub>2</sub> concentration in a particular geographical area may not be representative of the local NO<sub>x</sub> emission sources.

**Figure A1-4** provides the distribution of the county's nitrogen oxide (NO<sub>x</sub>) emissions by source for 2007. All sources combined to total 13,620 tons.<sup>5</sup>

**FIGURE A1-4  
2007 NITROGEN OXIDE EMISSIONS SOURCES**



### ***Sulfur Dioxide***

SO<sub>2</sub> is produced by such stationary sources as coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with SO<sub>2</sub> exposure pertain to the upper respiratory tract. SO<sub>2</sub> is a respiratory irritant with constriction of the bronchioles occurring with inhalation of SO<sub>2</sub> at 5 ppm or more. On contact with the moist mucous membranes, SO<sub>2</sub> produces sulfurous acid, which is a direct irritant. Concentration rather than duration of the exposure is an important determinant of respiratory effects. Exposure to high SO<sub>2</sub> concentrations may result in edema of the lungs or glottis and respiratory paralysis.

The County's 2007 SO<sub>2</sub> emission sources were predominantly ships and commercial boats (69%) and petroleum refining (22%). Other sources were wildfires (6%), fuel combustion (3%), and trains (<1%).<sup>6</sup>

<sup>5</sup> San Luis Obispo Air Pollution Control District. 2007 Emissions Inventory. <http://www.slcleanair.org/air/emissions.php>.

### ***Particulate Matter***

Particulate matter is a generic term used to describe a complex group of air pollutants (mineral, metal, smoke, soot, and dust particles) that vary in size and composition, depending upon the location and time of its source. It is any material, except pure water, that exists in the solid, liquid or semi-volatile state in the atmosphere. The PM mixture of fine airborne solid particles and liquid droplets (aerosols) include components of nitrates, sulfates, elemental carbon, organic carbon compounds, acid aerosols, trace metals, and geological material. Some of the aerosols are formed in the atmosphere from gaseous combustion byproducts such as volatile organic compounds (VOCs), oxides of sulfur (SO<sub>x</sub>) and oxides of nitrogen (NO<sub>x</sub>). Airborne particles vary in size from coarse wind blown dust particles to fine particles that are directly emitted or formed chemically in the atmosphere. Particulate matter is usually referred to as PM<sub>10</sub> and fine particulate matter is PM<sub>2.5</sub>.

While particulate matter also has many natural sources, human derived sources such as vehicle exhaust, road dust, mineral quarries, grading, demolition, agricultural tilling, and burning are major contributors to exceedances in the county. In addition to reducing visibility, particulate matter can lodge in the lungs and cause serious, long-term respiratory illness and other health problems. The smaller the size of the particle, the deeper it can penetrate into the lungs, and the more difficult it is to expel.

San Luis Obispo County is designated non-attainment for the state PM<sub>10</sub> standard. Violations of the state standard continue to occur throughout the county several times a year. In general, the PM<sub>10</sub> and PM<sub>2.5</sub> levels measured in the county result from human and natural sources and processes within and closely adjoining the county. Reducing particulate matter (PM) air pollution is one of the APCD's highest public health priorities. Exposure to particulate pollution is linked to increased frequency and severity of asthma attacks, pneumonia and bronchitis, and even premature death in people with pre-existing cardiac or respiratory disease.

**Table A1-1** provides the distribution of the county's PM emissions by source for 2007.<sup>7</sup>

<sup>6</sup> San Luis Obispo Air Pollution Control District. 2007 Emissions Inventory. <http://www.slocleanair.org/air/emissions.php>.

<sup>7</sup> San Luis Obispo Air Pollution Control District. 2007 Emissions Inventory. <http://www.slocleanair.org/air/emissions.php>.



**TABLE A1-1**  
**2007 PARTICULATE MATTER SOURCES – PM, PM10 AND PM2.5**

<b>Emission Source</b>	<b>PM (tpy)</b>	<b>PM10 (tpy)</b>	<b>PM2.5 (tpy)</b>
Wildfires	3,292.3	2,306.8	1,956.4
Ships & Commercial Boats	382.8	366.2	356.1
Waste Burning & Disposal	35.0	34.4	32.1
Unpaved Road Dust	5,449.5	3,225.6	321.2
Paved Road Dust	3,923.8	1,788.5	266.5
Construction & Demolition	3,033.2	1,485.6	149.7
Livestock	1,587.8	722.7	149.7
Residential Fuel Combustion	675.3	631.5	609.6
Mineral Processes	251.8	86.6	
Cooking		123.0	73.8
Fugitive Wind Blown Dust		638.8	105.9
Farm Equipment			62.1
Off-Road Equipment			91.3
On-Road Motor Vehicle			114.2
Petroleum Refining			9.4
<b>TOTAL</b>	<b>18,631.3</b>	<b>11,409.6</b>	<b>4,297.6</b>

## Regulatory Framework

In 1970, Congress created the Environmental Protection Agency (EPA) and passed the Clean Air Act, giving the federal government authority to clean up air pollution across the country. Since then, EPA and states, tribes, local governments, industry, and environmental groups have worked to establish a variety of programs to reduce air pollution levels across America. Federal, state, and local government agencies protect human health and the environment through the regulatory process and voluntary programs.

The U.S. Environmental Protection Agency (EPA) is the federal agency designated to administer air quality regulation, while the California Air Resources Board (CARB) oversees pollution control in the state. CARB is part of the California Environmental Protection Agency, an organization which reports directly to the Governor's Office in the Executive Branch of California State Government. Local control in air quality management is provided by the CARB through regional-level Air Pollution Control Districts (APCDs). The CARB establishes air quality standards and is responsible for the control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources.

The ARB traditionally has established state air quality standards by maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality standards by maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving state implementation plans.

The San Luis Obispo Air Pollution Control District (SLO APCD), one of 35 air pollution districts addresses air pollution for the county. Responsibilities of air districts include overseeing stationary source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing sections related to air quality of environmental documents required by the California Environmental Quality Act (CEQA). Depending on the particular problems of a region, some of the types of air pollution sources that might be regulated include manufacturers, power plants, refineries, gasoline service stations, and auto body shops. APCDs also implement transportation control measures for their respective regions.

## **FEDERAL REGULATIONS AND POLICIES**

### ***Clean Air Act***

In 1970, Congress established a comprehensive response to air pollution control with the passage of the Clean Air Act. In 1990, Congress dramatically revised and expanded the Clean Air Act, providing EPA even broader authority to implement and enforce regulations reducing air pollutant emissions. The 1990 Amendments also placed an increased emphasis on cost-effective approaches to reduce air pollution. The act directs the U.S. Environmental Protection Agency (EPA) to establish ambient air standards for six pollutants: ozone, CO, lead, nitrogen dioxide (NO<sub>2</sub>), particulate matter, and sulfur dioxide (SO<sub>2</sub>). The standards are divided into primary and secondary standards; the former are set to protect human health within an adequate margin of safety and the latter to protect environmental values, such as plant and animal life.

The Clean Air Act also gives EPA the authority to limit emissions of air pollutants coming from sources like chemical plants, utilities, and steel mills. Individual states or tribes may have stronger air pollution laws, but they may not have weaker pollution limits than those set by EPA. EPA assists state, tribal, and local agencies by providing research, expert studies, engineering designs, and funding to support clean air progress. EPA must approve state, tribal, and local agency plans for reducing air pollution. If a plan does not meet the necessary requirements, EPA can issue sanctions against the state and, if necessary, take over enforcing the Clean Air Act in that area.

### Federal Conformity Requirements

The Clean Air Act requires that all federally funded projects conform to the appropriate State Implementation Plan (SIP). Federal actions are subject to either the transportation conformity rule (40 CFR 51[T]), which applies to federal highway or transit projects, or the general conformity rule.

The purpose of the general conformity rule is to ensure that federal projects conform to applicable SIPs so that they do not interfere with strategies employed to attain the National Ambient Air Quality Standards (NAAQS). The rule applies to federal projects in areas designated as nonattainment areas for any of the six criteria pollutants and in some areas designated as maintenance areas. The rule applies to all federal projects except:

- 1) Programs specifically included in a transportation plan or program that is found to conform under the federal transportation conformity rule,
- 2) Projects with associated emissions below specified *de minimis* threshold levels, and
- 3) Certain other projects that are exempt or presumed to conform.

A general conformity determination must be performed to demonstrate that emissions for each affected pollutant would conform with the applicable SIP if a proposed action's total direct and indirect emissions for any pollutant for which the region is classified as being a maintenance or nonattainment area for the national standards fail to meet either of the following two conditions.

- 4) Emissions are below the applicable *de minimis* levels.
- 5) Emissions are regionally insignificant (i.e., total emissions are less than 10% of the area's total emissions inventory for that pollutant).

If the above two conditions are met, however, the requirements for general conformity do not apply, because the proposed action is presumed to conform to the applicable SIP for each affected pollutant. As a result, no further analysis or determination would be required.

### STATE REGULATIONS AND POLICIES

#### *California Clean Air Act*

The California Clean Air Act of 1988, as amended (California CCAA) substantially added to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA focuses on attainment of the state ambient air quality standards, which, pollutants and averaging (measurement) periods are more stringent than the comparable federal standards.

The CCAA requires designation of attainment and nonattainment areas with respect to state ambient air quality standards. The CCAA also requires that local and regional air districts expeditiously adopt and prepare an air quality attainment plan if the district violates state air quality standards for carbon monoxide, sulfur dioxide, nitrogen dioxide, or ozone. These clean air plans are specifically designed to attain these standards and must be designed to achieve an annual 5% reduction in district-wide emissions of each nonattainment pollutant or its precursors. No locally prepared attainment plans are required for areas that violate the state PM10 standards.

The California Clean Air Act requires that the state air quality standards be met as expeditiously as practicable but, unlike the federal Clean Air Act, does not set precise attainment deadlines. Instead, the act established increasingly stringent requirements for areas that will require more time to achieve the standards.

The ARB maintains a website with [designation maps of California](#) for all criteria pollutants that are designated for the State and National standards. These maps show attainment status for all air districts in California and are updated annually for the State area Designations, as required by the Health and Safety Code (H&SC) section 39608. The Board makes State area designations for ten criteria pollutants: ozone, suspended particulate matter (PM10), fine suspended particulate matter (PM2.5), carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and visibility reducing particles.

### ***Toxic Air Contaminants (TACs)***

TACs in California are regulated primarily through the Tanner Air Toxics Act (AB 1807 [Statutes of 1983]) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588 [Statutes of 1987]). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review must occur before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, diesel PM was added to the ARB list of TACs.

Once a TAC is identified, ARB then adopts an airborne toxics control measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions.

AB 2588 requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

***California Environmental Quality Act***

Analysis of potential air quality of a project as defined by the California Environmental Quality Act (CEQA) is conducted on a project-by-project basis at the direction of a lead agency. Pursuant to the State CEQA Guidelines, air quality impacts of a project would be significant if they would:

- 1) Conflict with or obstruct implementation of the applicable air quality plan;
- 2) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- 3) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- 4) Expose sensitive receptors to substantial pollutant concentrations; and/or
- 5) Create objectionable odors affecting a substantial number of people.

**LOCAL REGULATIONS, PLANS AND POLICIES*****San Luis Obispo County Air Pollution Control District (APCD)***

At the local level, the San Luis Obispo County Air Pollution Control District (APCD) is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws. The APCD Board consists of twelve members, five County Supervisors and one city council representative from each of the seven incorporated cities. The Board is the decision making body for the District and is responsible for adopting rules, setting policies and providing direction on important air quality issues impacting the county. For more information, visit the APCD's website: <http://www.slocleanair.org/who/index.php>.

District staff monitors county air quality, review land use projects, develop and enforce rules and regulations, issue permits, and create a long-term Clean Air Plan for our county. The District works with government, industry, businesses, and the public to reduce air pollution from stationary sources, such as power plants, corner gas stations, and local dry cleaners. The APCD also implements programs to promote alternative means of transportation, such as carpooling, telecommuting, and use of clean vehicle technologies.

**Strategic Action Plan**

The APCD's [Strategic Action Plan](#) was developed to ensure that the APCD's priorities and programs remain properly aligned with its mission, to identify top goals, objectives and implementation tactics, to ensure resources are best utilized to achieve its mission, and to

preserve air quality throughout the county. The 2007 update to the Strategic Action Plan included two specific measures regarding the need to build an informed public and to increase awareness on global climate change. A public opinion survey was identified as an effective means to gain a baseline understanding of how residents view air quality, climate change, and individual actions that can reduce our impacts. The APCD consolidated survey efforts with the San Luis Obispo Council of Governments to reduce survey costs and gain insight on a broader range of topics, including transportation and land use.

In January 2008, Opinions Studies conducted a scientifically-valid phone survey that produced 601 interviews with residents countywide. In addition, interested individuals were able to participate in the survey via website or mail-in response, resulting in 1,335 additional “volunteered” responses. While the telephone survey of 601 county residents provides the most reliable and statistically valid data in terms of countywide and sub-regional analysis, the “volunteer” sample provides the additional insights into respondent perspectives, especially the more proactive residents of the region.

The [Public Opinion Survey](#) report provides detailed information on the responses from the phone and “volunteer” survey, and evaluates the data on a sub-regional and countywide basis. Some key findings from the survey related to air quality, climate change, energy use and land use are listed below:

#### ***Attitudes Toward Air Quality and Climate Change***

- County residents are more concerned about local air quality than they are about climate change. Moreover, the percentage of people who said they have ‘no’ concern for climate change far exceeds those who said they have ‘no’ concern for protecting air quality. North County residents are less concerned about both air quality and climate change issues than are residents of other regions.
- About one fourth of residents say they are ‘very’ knowledgeable about ways to reduce their impact on air quality and climate change.
- Approximately 1/3 of all residents have made ‘a lot’ of lifestyle changes to reduce their impact on air quality and climate change. Another third have made some changes while the remaining third have made a few or no changes.
- Messages that encourage residents to ‘buy locally grown produce or manufactured items’ and/or to ‘combine errands into one trip’ are likely to influence the greatest number of people; least effective are statements about ‘reducing car use’.

***Attitudes Toward Alternative Sources of Energy***

- 94% of respondents support the idea of government agencies working to provide more energy through renewable sources. Two-thirds of respondents would support such efforts even with a 5% increase over current costs.

***Land Use Issues***

- Respondents support development in urban areas more than they do in rural areas. 80% - 85% support development that provides single-family homes or condominiums in urban areas.
- 78% support the idea of planning communities that make it easier to get around by bus, biking or walking rather than planning communities that accommodate cars.
- Rural development is the planning issue with the least consensus among respondents.
- 54% indicated they would like planners to discourage rural development while 46% would like to allow such developments. North County respondents, followed by South County respondents, were generally more in support of rural development than were respondents the central and coastal regions.

**San Luis Obispo Clean Air Plan**

As part of the California Clean Air Act, the APCD is required to develop a plan to achieve and maintain the state ozone standard by the earliest practicable date. The [Clean Air Plan \(CAP\)](#) outlines the District's strategies to reduce ozone precursor emissions from a wide variety of stationary and mobile sources.

Analysis of several long-term air quality trends in the county demonstrates that ozone air quality in the coastal and southern areas of the county appears to be improving while air quality in the north county is declining. At the county level, transportation control measures and land use planning strategies play an important role in the implementation of the Clean Air Plan.

Certain local projects and programs require an analysis of consistency with the Clean Air Plan including General Plan Updates and Amendments, Specific Plans, Area Plans, large residential developments and large commercial/industrial developments. The consistency analysis must evaluate the following questions:

- Are the population projections used in the plan or project equal to or less than those used in the most recent CAP for the same area?
- Is rate of increase in vehicle trips and miles traveled less than or equal to the rate of population growth for the same area?



- Have all applicable land use and transportation control measures from the CAP been included in the plan or project to the maximum extent feasible?

If the answer to all of the above questions is yes, then the proposed project or plan is consistent with the CAP. If the answer to any one of the questions is no, then the emissions reductions projected in the CAP may not be achieved, which could delay or preclude attainment of the state ozone standard. This would be inconsistent with the Clean Air Plan.

Appendix E of the District's Clean Air Plan and the document "Creating Transportation Choices Through Development Design and Zoning" outline development practices that can improve local communities, reduce vehicle dependence and decrease impacts on our air quality. Recommended development practices include:

- Building compact communities to limit urban sprawl;
- Mixing complementary land uses, such as commercial services located within and/or adjacent to medium or higher density housing;
- Develop core commercial areas within 1/4 to 1/2 miles of residential housing areas;
- Develop residential housing areas within 1/4 mile of transit centers and transit corridors;
- Providing a balance of job opportunities and housing within communities;
- Increasing residential and commercial densities along transit corridors;
- Orienting buildings toward streets with automobile parking in the rear to promote a pedestrian-friendly environment and to provide convenient pedestrian and transit access;
- Providing a pedestrian-friendly and interconnected streetscape to make walking more convenient, comfortable and safe;
- Providing good access for pedestrians, bicyclists, and transit users; and,
- Directing new developments toward in-fill locations that provide development within the urban core and urban reserve lines.

### **CEQA Handbook**

The APCD's [CEQA Handbook](#) provides information on the District's significance thresholds for determining potential air quality impacts from proposed residential and commercial development and provides recommendations on the level of mitigation necessary to reduce those impacts. Appendix A to the CEQA Handbook outlines the building permit requirements for facilities potentially subject to air district permitting.



The District has established four separate categories of evaluation for determining the significance of project impacts. Full disclosure of the potential air pollutant and/or toxic air emissions from a project is needed for these evaluations, as required by CEQA:

- Comparison of calculated project emissions to District emission thresholds;
- Consistency with the most recent Clean Air Plan (CAP) for San Luis Obispo County;
- Comparison of predicted ambient pollutant concentrations resulting from the project to state and federal health standards, when applicable; and
- The evaluation of special conditions which apply to certain projects.

Any proposed development which has the potential to exceed local CEQA construction or operation thresholds for one or more air pollutants (e.g., reactive organic gases, nitrogen oxides, sulfur dioxide or particulate matter) should be submitted to the APCD for review. This includes residential projects of greater than 35 homes, retail projects greater than 3,000 square feet, or any project that will include four or more acres of grading.

The APCD evaluation of development projects includes an estimation of air pollution produced during construction of the project (short term emissions), including diesel emissions and dust, and from new vehicle trips that will result once the development is in operation (long term emissions). The APCD estimates potential air quality impacts by performing emission calculations and using computer air modeling tools. The estimated emission levels are compared to the APCD's California Environmental Quality Act (CEQA) significance thresholds, and then mitigation measures are suggested as necessary to minimize potential air quality impacts.

#### **Annual Air Quality Report (2007)**

The San Luis Obispo Air Pollution Control District (SLOAPCD) annually reports the air quality in the County. The 2007 report concluded that most populated areas of the County enjoyed very good air quality.

Ozone and PM10 are the pollutants of main concern, since exceedences of state health-based standards for those are experienced here in most years. Ozone levels exceeding both federal and state standards were measured on numerous days in the Carrizo Plains due to transported pollution from the San Joaquin Valley. Exceedence days in Atascadero and in Paso Robles were also concurrently recorded for the state 8-hour standard. Exceedences of the state 24 hour PM10 standard were recorded at Nipomo Mesa 2, Nipomo Regional Park, San Luis Obispo, Morro Bay and Paso Robles. There was no measured exceedence of other air quality standards in 2006.

The county is designated as a non-attainment area for the state PM<sub>10</sub> and ozone standard. In order for a district to be in attainment, the State standards for any criteria pollutant must not be exceeded for three consecutive years.

### **Annual Emissions Inventory**

The [annual emissions inventory](#) is a compilation of emissions information from all sources within the county throughout the calendar year. Summaries are prepared for six of the main or "criteria" pollutants – reactive organic gases, nitrogen oxides, sulfur oxides, and particulate matter. Emissions sources are grouped into categories such as stationary, area, mobile and natural sources. The most recent trend data from the SLO APCD is depicted in Figure 6-1 earlier in this chapter. The projections do not take into account any emission benefits from the proposed PM control strategies.

### **Ambient Air Monitoring Network Plan**

SLOAPCD conducts an annual examination of the SLOAPCD's network of air pollution monitoring stations. Title 40, Code of Federal Regulations, Part 58, requires the annual review of state and local air monitoring stations network. The report is a directory of existing and proposed monitoring in the SLOAPCD's network of air quality monitoring and research stations and serves as a progress report on the recommendations and issues raised in earlier network reviews.

### **PM Report**

In 2003, the California Legislature enacted Senate Bill 656 (Sher), to reduce public exposure to particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub> are collectively referred to as PM). SB 656 required the California Air Resource Board (ARB) in consultation with local air pollution control districts, to develop and adopt a list of PM reduction strategies.

San Luis Obispo APCD adopted the PM Report and associated control measures in July 2005. The report identifies PM control for five primary categories and associated measures. The categories include paved and unpaved roads, open burning, fugitive dust, refinery and Calcliner activities and particulate exhaust concentrations. The top five sources of direct PM<sub>10</sub> emissions are area sources - unpaved road dust, paved road dust, construction and demolition, prescribed burning, and farming operations (dust). These sources contribute 77% of the total PM<sub>10</sub> emissions in the county.

### **Nipomo Mesa Particulate Study**

Particulate concentrations on the Mesa have been significantly higher than other areas of San Luis Obispo County over the past 20 years. Between April 2004 and March 2005, the District initiated a [particulate monitoring study](#) to delineate the nature and extent of the particulate problem observed on the Mesa.

***Central Coast Clean Cities Coalition (C5)***

The APCD is also integrally involved in the [Central Coast Clean Cities Coalition \(C5\)](#). C5 is a partnership of public/private entities whose goal is to promote the use of alternative fuels vehicles (AFV) on the Central Coast. By working with area fleet operators, C5 sponsors training seminars, public events and grant funding workshops related to use of alternative fuels. The U.S. Department of Energy granted C5I the “Clean Cities” designation in 2006 which enables the area to compete for federal funding aimed at improving the infrastructure for alternative fuels. APCD and C5 has helped facilitate the National Alternative Fuel Vehicle (AFV) Day Odyssey which showcases local AFV that offer an option to diesel powered vehicles. C5 pursues the following goals:

- Increase the number of alternative fuel vehicles and expand the alternative fuel infrastructure in the county and improve the clean fuel corridors between Los Angeles, San Francisco and the San Joaquin Valley.
- Identify local fleets and educate fleet managers / purchasers to the federal and state mandates regarding AFV requirements (i.e., identify total fleets in the county, identify fleets required to meet EPA requirements, support the development of fleet compliance plans).
- Promote AFV maintenance and technician training programs and provide listing of training sites and dates.
- Secure grants to promote AFV's and alternative fuel infrastructure throughout the county.
- Promote AFV benefits and awareness to public and private sectors alike.

***San Luis Obispo County Department of Planning and Building  
Annual Resource Summary Report (2007)***

The County's Annual Resources Summary Report includes air quality criteria, San Luis Obispo air quality characteristics, existing air quality, level of severity, and suggested actions for the future. The report concludes that air quality is at a Level II planning severity in all County planning areas. Level II identifies the crucial point at which some moderation of the rate of resource use must occur to prevent exceeding the resource capacity.

## Climate Change

### INTRODUCTION<sup>8</sup>

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. The Intergovernmental Panel on Climate Change (IPCC) defines climate change as "any change in climate over time, whether due to natural variability or as a result of human activity." The IPCC is a body created by the World Meteorological Organization and the United Nations Environment Program, and was created to assess peer reviewed scientific and technical studies and reports in order to present "comprehensive, objective, open and transparent" information on climate change.

Scientific consensus supports the conclusion that humans are impacting global climate by increasing greenhouse gases (GHG) in the atmosphere. GHGs are global pollutants, unlike criteria air pollutants, which are pollutants of regional and local concern, respectively. While the climate system is very complex and difficult to model precisely, the Intergovernmental Panel on Climate Change (IPCC) is increasingly certain that humans have a discernible influence on the global climate. Confirmation of the measured warming trend is substantiated by the rise in sea level of between four and 10 inches that has occurred since 1900 and the decrease in the average snow cover and glacial ice worldwide. Unseasonable weather phenomena are becoming commonplace and intensities appear to be increasing. A continued increase in greenhouse gas emissions, and the associated temperature rise, is likely to accelerate the rate of climate change, producing further impacts.

The primary greenhouse gas contributor is Carbon Dioxide (CO<sub>2</sub>). Scientists have established direct links between increased CO<sub>2</sub> concentrations and the atmospheric warming that has occurred since the industrial revolution. After remaining relatively constant from 1000 to 1700 C.E., CO<sub>2</sub> concentrations began to rise sharply and have increased 30% since pre-industrial times. They are continuing to increase by approximately one-half percent per year. (Visit <http://www.ipcc.ch/> to review the IPCC complete reports).

Greenhouse gas emissions resulting from human activities are substantially increasing the atmospheric levels of the greenhouse gases which include carbon dioxide, methane, halocarbons (HFCs), and nitrous oxide. Carbon dioxide emissions have increased 30% during the past century largely due to fossil fuel combustion which produces the largest amount of CO<sub>2</sub> emissions (about 80% of United States GHG emissions and about 87% of California emissions).

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<sup>8</sup> This section is excerpted from the State of California's Climate Change Portal's Frequently Asked Questions about Global Climate Change website - <http://www.climatechange.ca.gov/publications/faqs.html#ie>.

California produces roughly 1.4 percent of the world's, and 6.2 percent of the total U.S., greenhouse gases.<sup>9</sup> In California, transportation contributes 39% of California's gross GHG emissions, and electricity production (both in-state and imported) contributes about 28% of the gross GHG emissions.<sup>10</sup> Methane emissions have doubled in the past 100 years. Over the same period, nitrous oxide levels have risen about 15%. Agriculture is a major source of both methane and nitrous oxide, with additional methane coming primarily from landfills. Halocarbons are another greenhouse gas. Most halocarbon emissions come from their use as refrigerants, solvents, propellant agent, and industrial processes. Manufactured compounds, like HFCs, persist in the atmosphere for long periods of time and have far greater effects at lower concentrations as compared to CO<sub>2</sub>. Although the amount released of these compounds is small, they are very effective at trapping heat in the atmosphere.

### **CLIMATE CHANGE IN CALIFORNIA<sup>11</sup>**

Because California has such a diverse topography, producing a variety of drastically different microclimates, the effect of climate change on California is complex. Climate variability and change will impact natural ecosystems and water resources. Major alterations to natural ecosystems due to climate change could possibly have negative consequences for our economy, which depends in part on our state's lands, waters, and native plant and animal communities.

#### ***Potential impacts to water supply***

Over the past 150 years, monitored mountain glaciers have been shrinking. If glaciers continue to shrink, summer water flows will drop sharply, disrupting a source of water for irrigation and power in many areas that rely on mountain watersheds. This will likely lead to more flooding during the winter and worsen drought conditions. In California's Central Valley, for example, melting snow provides much of the summer water supply; warmer temperatures would cause the snow to melt earlier and thus reduce summer supplies even if rainfall increased during the spring. Instead of increasing the amount of water supply available, the disrupted cycle is likely to cause excess rainfall and run-off, thus causing flooding and overflow of reservoirs which are not equipped to contain such large inflows of water.

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<sup>9</sup> <http://climatechange.ca.gov/index.php>

<sup>10</sup> <http://climatechange.ca.gov/ab32/index.html>

<sup>11</sup> This section is excerpted from the State of California's Climate Change Portal's Frequently Asked Questions about Global Climate Change website - <http://www.climatechange.ca.gov/publications/faqs.html#ie>.

The shortage of water in the summer due to runoff changes could worsen drought and increase diversions of rivers in California. This would mean higher cost and further adverse effects downstream. Together with changing temperatures, flows, and the ability of watersheds to assimilate wastes and pollutants, changing runoff patterns could also have the potential to alter water quality significantly. Additionally, sewage systems could be overwhelmed by storm runoff and high tides.

Rising sea levels can cause an increase in the intrusion of salt water into coastal aquifers, contaminating fresh water supplies. Sea level rise could especially affect the Sacramento San Joaquin River Delta, the hub of California's water transfer system. Higher tide levels would pose additional problems to the precarious Delta levee systems with a risk of more inland inundation and the corresponding threat to export water quality.

### ***Potential impacts to agriculture<sup>12</sup>***

Potential impacts, such as reduced water supply, more severe droughts, more winter floods, and drier growing seasons will affect agriculture (a \$26 billion Californian industry in 1997). Many farms especially in the fruit and nut business require long-term investments, making fast adaptation difficult, and could thus experience serious losses if decisions continue to be made with no regard to expected climate changes.

Water is needed year-round, especially for perennial crops. Perennial crop growers cannot shift quickly to new types of cultivars and they need reasonable water supply projections such as several decades for trees and vines. Problems with crops can persist many years if there is an extreme weather or pest-related event. Fruit trees are particularly vulnerable. Too much rain or too little rain can be a problem, as well as pest impacts, too much or too little fog, less frost days, and changes in the timing of the season can all disrupt their market.

In order to better deal with water shortage issues, irrigation practices need to improve, because there is already an increase in salts in the land. Some areas may lose productive capacity in a matter of decades with or without climate change, but climate change could make the problem worse. Even vineyards can be susceptible to fungi because of increased rainfall at the wrong time.

Coastal agriculture is also at risk due to potential impacts of sea level rise. Even if farmers move crops closer to the fog, they may permanently lose agriculture lands to the ocean.

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<sup>12</sup> Ibid.

***Potential impacts to California's fisheries<sup>13</sup>***

Studies found that as a result of changes in ocean conditions, the distribution and abundance of major fish stocks will change substantially. Impacts to fisheries related to El Nino/ Southern Oscillation illustrate how climate directly impacts marine fisheries on short term scales. Higher sea surface temperatures in 1997-1998 during the El Nino had a great impact on market squid, California's largest fishery by volume. The California Regional Assessment reports that landings fell to less than 1,000 metric tons in that season, down from 110,000 tons in the 1996-1997 season. Other unusual events also occurred such as poor salmon returns, a series of plankton blooms, and seabird die-offs.

***Potential impacts for California's coastline<sup>14</sup>***

With climate changes, recreational facilities and developed coastlines will also be more vulnerable to hurricanes, storm surges, flooding increases. Increasing population growth in coastal areas is a reason for further concern, since these areas could be more vulnerable to climate change impacts. Impacts of expected sea level rise and increased storm surges are numerous. Beachfront homes and harbors as well as wetlands may flood. Sewage systems may be overwhelmed by storm runoff and high tides. Jetties and seawalls may have to be raised and strengthened to protect harbors which are used for shipping, recreation, and tourism.

***Potential impacts for California's forests<sup>15</sup>***

The [California Regional Assessment](#) notes that an increase in the number and extent of areas burned by wildfires in recent years, and modeling results under changing climate conditions suggest that fires may be hotter, move faster, and be more difficult to contain under future climate conditions. The factors which contribute to the risk of catastrophic fires (fuel loads, high temperatures, dry conditions, and wind) are typically present already in summer and fall seasons in California, but can exist at other times of the year, especially in drought conditions. Public safety is an issue as more home and tourism developments on coastal hills and mountains and the foothills and higher elevations in the Sierra Nevada are highly susceptible to catastrophic wild fires.

Other climate impacts affecting forestry are: higher CO<sub>2</sub> concentrations which may increase growth, drought which can kill forests, changes in mineral nutrients, and pest population dynamics. However, more research is needed to understand whether total plant material is

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<sup>13</sup> Ibid.

<sup>14</sup> Ibid.

<sup>15</sup> Ibid.



expected to increase or decrease in California due to climate changes. Today's models of the Sierra Nevada and North Western California provide contradictory results on this subject.

***Potential impacts for air pollution in California<sup>16</sup>***

Projected climate changes will impact the quality of California's air, public health, and environment. Higher temperatures increase the formation of ground level ozone and particulate matter, making it more difficult to meet the health-based air quality standards for these pollutants. Ground-level ozone has been shown to aggravate existing respiratory illnesses such as asthma, reduce lung function, and induce respiratory inflammation. Ambient ozone also reduces agricultural crop yields and impairs ecosystem health.

The particulate matter of most concern - PM<sub>10</sub> - has been implicated in exacerbation of cardiovascular disease, asthma, other respiratory diseases, and associated with increased mortality. Air pollution is also made worse by increases in natural hydrocarbon emissions and evaporative emissions of fuels and solvents which lead to higher levels of ozone and PM<sub>10</sub> during hot weather. Warmer temperatures that cause increased use of air conditioners can cause increased air pollutants from power plants and from vehicle operation. In addition, warming, drying, and increased winds could mean hotter, harder-to-control wildfires. These wildfires could result in increased levels of fine particulate matter that could also exceed State and federal standards and harm public health.

***Potential impacts for California's energy supply<sup>17</sup>***

California's electricity generation is currently relatively efficient when it comes to emissions of greenhouse gases. The national average for the electricity generation share of total greenhouse gas emissions is approximately 40%, while California electricity accounts for only 16% of statewide emissions. This is in part due to California's significant amount of imported electricity, mild climate, and lack of energy-intensive industry. Over the past two decades, California has developed one of the largest and most diverse renewable electricity generation industries in the world. However, changes in climate of the magnitude predicted by the IPCC would substantially affect electricity generation throughout California and the entire Western States grid, particularly for hydroelectric facilities.

Less snowpack would result in lower levels of hydro generation in the summer and fall seasons due to reduced runoff in those seasons. Additional hydropower may be available during the winter and the spring. However, on balance hydropower is more useful and valuable within the grid mix of generation sources when it is available throughout the peak summer and fall

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<sup>16</sup> Ibid.

<sup>17</sup> Ibid.



seasons. The Natural gas distribution system may also be damaged because of landslides and fires. Flooding could also impact pipelines, wells and related petroleum extraction equipment. Warmer weather would result in an increased demand for electricity for cooling appliances in homes, and businesses.

***Potential impacts for California's ecosystems<sup>18</sup>***

The current distribution, abundance, and vitality of species and habitats are strongly dependent on climatic (and microclimatic) conditions. Climate change is expected to result in warmer temperatures year-round, accompanied by substantially wetter winters. Rising sea level will significantly affect coastal wetlands because they are mostly within a few feet of sea level. As the sea rises, these wetlands will move inland. The overall acreage of wetlands will be reduced due to constraints by existing urban development and steeper slopes immediately inland of existing wetlands. Tidal rivers, estuaries, and relatively flat shoreline habitats will be more subject to damage by flooding and erosion. More severe storm surges from the ocean, due to higher sea levels, combined with higher river runoff could significantly increase flood levels by more than the rise in sea level alone. Erosion of beaches would decrease habitat for beach-dependent species, such as seals, shorebirds, and endangered species (for example, snowy plover and least tern). Aquatic habitats are also likely to be significantly affected by climatic changes. Most fish have limits to how hot or cold the water can be before they must either find more hospitable temperatures or die. As temperatures warm, many fish will have to retreat to cooler waters.

Changes in temperature and precipitation patterns would also shift California's current climate zones, and thus habitats associated with these zones, northward by approximately 100 - 400 miles, as well as upwards in elevation by 500-1500 feet. Global climate change would alter the composition, structure and arrangement of the vegetation cover of the state (forest and wildland). Species distribution would move geographically as the climate changes, with forest stands, woodlands and grassland species predicted to move northward and higher in elevation. The entire vegetative community may be affected if non-native invasive species occupy sites and replace native plants. Outbreaks of insects and diseases could compromise forest health and the capability of the forest stands reproduce and to store carbon on a landscape basis. Forest fires are likely to become more frequent and severe if soils become drier. Changes in pest populations could further increase the stress on forests.

Climate change has and will continue to impact the environment in a variety of ways, and will cause economic and social effects. Potential climate change impacts directly affecting San Luis Obispo County include the following: sea level rise and increased flooding, water supply issues,

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<sup>18</sup> Ibid.

wildfire risk, public health concerns, air quality threats, more intense storm events, changes in migration and habitat needs of native wildlife, and impacts to energy demand and supply.

## REGULATORY FRAMEWORK

### *State Regulations and Policies<sup>19</sup>*

State regulations at the time of this Conservation Element that specifically address greenhouse gas emissions and climate change are outlined below. At this time, there are no regulations setting ambient air quality emissions standards for greenhouse gases. California is highly ranked in the world for the amount of GHG emissions emitted in the state, but has taken the lead in creating stringent GHG emissions reduction policies.

#### **Assembly Bill 1493**

In 2002, then-Governor Davis signed Assembly Bill (AB) 1493. AB 1493 requires that the California Air Resources Board (ARB) develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty truck and other vehicles determined by the ARB to be vehicles whose primary use is noncommercial personal transportation in the state.”

#### **Executive Order S-3-05**

Executive Order S-3-05 proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra’s snowpack, further exacerbate California’s air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order establishes total greenhouse gas emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80% below the 1990 level by 2050. The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce greenhouse gas emissions to the target levels. The Secretary will also submit biannual reports to the governor and state legislature describing: (1) progress made toward reaching the emission targets; (2) impacts of global warming on California’s resources; and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of the CalEPA created a [Climate Action Team \(CAT\)](#) made up of members from various state agencies and commissions. CAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

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<sup>19</sup> State regulations and policies that are directly related to energy, including those that facilitate greenhouse gas emissions reductions from the energy sector, are detailed in the Energy Appendix.

**Assembly Bill 32, The California Global Warming Solutions Act of 2006**

In September 2006, Governor Schwarzenegger signed [AB 32](#), the California Global Warming Solutions Act of 2006. The State legislature recognized the importance of the issue of climate change, as AB 32 states: "Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." It establishes the first-in-the-world comprehensive program of regulatory and market mechanisms to achieve real, quantifiable, cost-effective reductions of greenhouse gases (GHG). The Act continues the existing Climate Action Team to coordinate statewide efforts, and makes the California Air Resources Board (ARB) responsible for monitoring and reducing GHG emissions. The Act authorizes the Governor to invoke a safety valve in the event of extraordinary circumstances, catastrophic events, or the threat of significant economic harm, for up to 12 months at a time. The state's GHG reduction strategies focus on some specific areas to reach the 2020 emissions level goal of 427 million metric tons of CO<sub>2</sub>: transportation reductions, electricity and natural gas reductions, forestry conservation, urban forestry and additional measures.

Since adoption, ARB staff has laid out the strategy to meet the program's goals in the form of the draft scoping plan, and have developed numerous specific regulations targeted at reducing greenhouse gas emissions from a variety of sources throughout the state. ARB has also released greenhouse gas emissions accounting and reporting protocol for specific sectors and local government operations. The local government operations protocol provides a consistent methodology to develop greenhouse gas emission inventories for California's local governments, including cities and towns. The protocol lays out specific guidelines in how local governments can assess emissions from buildings and facilities; streetlights and traffic signals; water delivery and wastewater treatment facilities; ports and airports; vehicle and transit fleets; power generation facilities; solid waste facilities; and other process and fugitive emissions.

**Senate Bill 375**

[SB 375](#) builds on the existing regional transportation planning process (which is overseen by local elected officials with land use responsibilities) to connect the reduction of greenhouse gas (GHG) emissions from cars and light trucks to land use and transportation policy. In order to reach the greenhouse gas reduction goals set out in AB 32, the Global Warming Solutions Act of 2006, SB 375 provides emissions-reduction goals around which regions can plan - integrating transportation, housing, and land use planning activities and providing incentives for local governments and developers to adopt smart growth.

SB 375 enhances the Air Resources Board's (ARB) ability to reach AB 32 goals by directing ARB to develop regional greenhouse gas emission reduction targets from the automobile and light truck sectors for 2020 and 2035. ARB will also work with California's 18 metropolitan planning organizations (MPOs) to align their regional transportation, housing and land-use plans and prepare a "sustainable communities strategy" (SCS) to reduce the amount of vehicle miles

traveled (VMT) in their respective regions and demonstrate the region's ability to attain its greenhouse gas reduction targets.

Additionally, SB 375 provides incentives for creating attractive, walkable and sustainable communities and revitalizing existing communities. The bill also allows home builders to get relief from certain environmental reviews under the California Environmental Quality Act if they build projects consistent with the new sustainable community strategies. It will also encourage the development of more alternative transportation options, which will promote healthy lifestyles and reduce traffic congestion.

### **Senate Bill 732**

[SB 732](#) will provide a comprehensive statutory framework to implement new programs under Proposition 84, the \$5.4 billion initiative voters passed in 2006 for safe drinking water, water quality and supply, flood control, natural resource protection and park improvements. The bill also establishes the Strategic Growth Council and will appropriate \$500,000 from Prop 84 to the Resources Agency to support the Council and its activities. The bill requires the Council to take certain actions with regard to coordinating programs of various state agencies to improve air and water quality, improve natural resource protection, increase the availability of affordable housing, improve transportation, meet the goals of AB 32, encourage sustainable land use planning and revitalize urban community centers in a sustainable manner. The Council will also manage and award grants and loans to support the planning and development of sustainable communities.

### **State Attorney General**

As the chief law enforcement officer of California, the Attorney General has committed to doing everything in his power to ensure that California meets its greenhouse gas reduction targets. At the 113th annual meeting of the California State Association of Counties in November 2007, Attorney General Edmund G. Brown Jr. challenged supervisors representing the 58 counties of California to “combat global warming through green buildings, alternative energy and wise land use rules.” During the meeting, Attorney General Brown challenged the counties to immediately lead the charge against climate disruption and combat global warming through green buildings, alternative energy and wise land-use rules.

The Attorney General’s office has suggested that by law, a General Plan must discuss climate change, and include meaningful, tangible, enforceable, and funded policies, implementation mechanisms and timelines. Local government agencies are responsible, under the California Environmental Quality Act, to address the potential impacts of global warming. In comments to local jurisdictions, on projects with potentially large amounts of greenhouse gas emissions, Attorney General Brown has outlined feasible mitigations which include: green building, alternative energy and land use mitigations. The Attorney General has reached landmark

agreements with San Bernardino County, ConocoPhillips, and the City of Stockton that will reduce the greenhouse gas emissions attributable to these major projects and General Plan implementation.

### **LOCAL RESPONSE TO CLIMATE CHANGE**

The San Luis Obispo County Air Pollution Control District (APCD) Board, at its November 16, 2005 meeting approved APCD staff's proposal to take actions locally to address climate change. Staff recommendation and proposed actions are outlined in a report entitled *Options for Addressing Climate Change in San Luis Obispo County*.

Many of the air pollution programs already in place throughout the county reduce ozone forming pollutants and toxic emission, but they also have ancillary benefits and reduce greenhouse gas emissions. These programs include existing rules and regulations, clean fuels programs, CEQA mitigations measures, grants, Transportation Choices Program, pollution prevention activities, and general public outreach.

The climate change action plan identifies the following seven actions that could be implemented to specifically address greenhouse gases (GHG) at the local level:

- 1) Prepare a countywide inventory of greenhouse gas emissions.
- 2) Target a percentage of mitigation grant funds for greenhouse gas emission reductions.
- 3) Evaluate and quantify the GHG reduction benefits from existing district programs.
- 4) Develop public education and outreach campaigns on climate change.
- 5) Encourage and provide support for local governments to join Cities for Climate Protection program.
- 6) Develop partnership with Cal Poly for addressing climate change.
- 7) Join the California Climate Registry and encourage local industry participation.

As of November 2008, the APCD has initiated all of the implementation actions to address climate change and reduction of greenhouse gas emissions in the county. The APCD joined the California Climate Registry and conducted its greenhouse gas emissions inventory in the fall of 2008. The APCD facilitates regular meetings of Climate Change Stakeholders, a local group of city and county representatives that shares resources to address climate change. To encourage and support local greenhouse gas emissions inventories, the APCD secured consultant services to assist or perform GHG emissions for all of the incorporated cities in the county. The GHG inventories are in progress and a complete countywide GHG emissions inventory is expected at the time of adoption of this Element.

This Conservation and Open Space Element acknowledges the potential impacts of climate change in the county and includes specific policies and implementation strategies that will reduce greenhouse gas emissions and allow the county to adapt to climate change. In addition, the county has conducted a Greenhouse Gas Emissions Baseline Inventory for county operations and communitywide emissions in the calendar year of 2006. The findings of the report are attached as a separate appendix.

## References

California Energy Commission. 2006. Inventory of California Greenhouse Gas Emissions and Sinks 1990-2004 (CEC-600-2006-013-SF).

California Environmental Protection Agency Air Resources Board. 2007. Staff Report California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit.

California Environmental Protection Agency. 2004. ARB Technical Support document for Staff Proposal Regarding Reduction of Greenhouse Gas Emissions from Motor Vehicles.

California Environmental Protection Agency Air Resources Board. Climate Change Portal. <http://www.arb.ca.gov/cc/cc.htm>

Governor's Office of Planning and Research. 2003. General Plan Guidelines, 2003. [http://www.opr.ca.gov/planning/publications/General\\_Plan\\_Guidelines\\_2003.pdf](http://www.opr.ca.gov/planning/publications/General_Plan_Guidelines_2003.pdf)

Intergovernmental Panel on Climate Change. Fourth Assessment Report, Working Group I. 2007. Climate Change 2007: The Physical Science Basis, Summary for Policy Makers.

San Luis Obispo County Air Pollution Control District. 2001. *Clean Air Plan San Luis Obispo County*. <http://www.slocleanair.org/business/pdf/CAP.pdf>.

San Luis Obispo Air Pollution Control District. 2005. *Annual Air Quality Summary*. <http://www.slocleanair.org/air/pdf/2006aqrptfullversion.pdf>

San Luis Obispo Air Pollution Control District. 2005. *Particulate Matter Report Implementation of SB 656 Requirements*.

San Luis Obispo Air Pollution Control District. 2006. *Annual Air Quality Report*. <http://www.slocleanair.org/air/pdf/2006aqrptfullversion.pdf>

San Luis Obispo Air Pollution Control District. 2007a. *Emission Inventory Summary*. <http://www.slocleanair.org/air/emissions.php>

San Luis Obispo Air Pollution Control District. 2007b. *Strategic Action Plan 2004 – 2009*.  
<http://www.slocleanair.org/who/pdf/sap.pdf>

San Luis Obispo County Department of Planning and Building. 2007. *Annual Resource Summary Report*.

United States Environmental Protection Agency. *Glossary of Climate Change Terms*.  
<http://yosemite.epa.gov/oar/globalwarming.nsf/content/glossary.html>